



MARSHALL STAR

Serving the Marshall Space Flight Center Community

Nov. 15, 2001

Inside the Star

- **Director's Corner, page 2**
- **CFC Community Service Days, page 6**
- **Industrial Safety introduces IHOPS, page 5**

Meteor shower this weekend

NASA to track and share Leonids data

by Sherrie Super

From Mongolia to Maui, researchers from the Marshall Center will use special cameras to scan the skies and report meteor activity around the clock during the Leonids shower Saturday and Sunday.

From six key points on the globe, they will record and transmit their observations to the Marshall Center's Leonid Environ-

ment Operations Center — a data clearinghouse that will provide meteor updates in near real-time intervals through the NASA Web site: *SpaceWeather.com*, a website sponsored by *science@nasa.gov*.

Led by the Engineering Directorate at the Marshall Center, the effort is part of a long-term goal to protect spacecraft such

See Leonids on page 8

Hands-on learning effort encourages teens to choose engineering career

by Lynnette Madison

Scientists study the world as it is, engineers create the world that never has been." — *Theodore Von Karman*

A group of college engineering students in Huntsville is about to take a unique "final exam," but they won't get a letter grade.

Instead, they'll experience the challenge and excitement of launching their own rocket and a scientific payload. They're working to meet NASA specifications that are modeled after the same Flight Readiness Reviews mandated for each Space Shuttle flight.

Participating in a NASA education program called the Student Launch Initiative, the students have been designing, building and testing their rocket and the scientific payload to be carried by the craft. Now, they're focused on the last big hurdle: a successful launch they hope will see the rocket — and their aspirations — soar more than 2 miles high.

The Student Launch Initiative, sponsored by the Marshall Center, was created last year to head off a potentially critical situation on the horizon: a shortage of engineers and rocket scientists.

See Students on page 3



File photo

Months of work invested by students in designing, building and testing a rocket, along with its experimental payload, are rewarded when the rocket successfully takes off and soars skyward.

Joe Rothenberg — A Great Boss

Director's Corner

Joe Rothenberg, associate administrator for the Office of Space Flight, has announced he will retire from NASA on Dec 15. I have had the privilege of working for Joe for the past three years. Joe has been responsible for the Space Shuttle and International Space Station Programs — two of NASA's biggest programs headed by the Johnson Space Center in Houston and supported by Marshall.

Joe has been a great mentor to me as I have tried to learn to be a government employee and manager. Three-and-a-half years ago, I got a call from Joe suggesting that I consider coming to Marshall as Center director. I remember the call very well as I said, "Joe, you have to be kidding." I was surprised to learn he was very serious.

Joe has never wavered in his steadfast support for Marshall. He has consistently been there to offer me advice and seriously address our concerns. In 1999 he led the charge to gain authority for Marshall to finally, after years of downsizing, be able to hire critical skills at a time when we were getting dangerously close to having inadequate staff to address our missions.

Joe was always been there when we called on him to come to the Center and work with us on issues and to celebrate our successes. Joe never missed our Annual Awards Ceremony, and he was here when we celebrated our 40th anniversary and when we celebrated the one-year successful operation of Chandra.

I can honestly say that I have never worked for a person

The Marshall Center is honoring Joe Rothenberg with a farewell reception from 5:30-7:30 p.m. Tuesday at the U.S. Space & Rocket Center Museum. All employees, contractors, retirees and spouses are invited. Tickets — at \$15 each — can be purchased from administrative officers or by calling Pat Fuller at 544-9171 or Sandy Such at 544-1928.

whom I enjoyed working for more. Joe was there to help and there to move the Agency forward.

On Joe's watch, the Office of Space Flight has accomplished a great deal. With Joe's oversight we have repeatedly (successfully) flown the Space Shuttle — no small achievement considering the many challenges we have heard about in getting ready to fly each mission. Every Shuttle sitting on the launch pad is uniquely different. One of Marshall's proudest moments was the successful launch and deployment of the Chandra X-Ray Observatory. Joe was a great help in offering advice as we wrestled with many challenges leading up to our launch.

We have also seen the build up of the International Space Station during Joe's time as head of the Office of Space Flight. Today the Station flies overhead with a permanent crew of three — the third brightest star in the evening sky. This Space Station is the most complex spacecraft ever built and it was built on orbit one piece at a time. I think we will look back on the construction and operation of the Space Station as one of the greatest achievements in space. Joe was there supporting the team of civil servants and contractors that made it possible.

Joe's greatest strength, I believe, is his constant support of the NASA team, with a background and knowledge that allowed him to make the right decisions.

Thanks Joe, for being a great leader/mentor/boss. We will miss you.

***— Art Stephenson,
Marshall Center Director***



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Marshall Center Director Art Stephenson, left, and Joe Rothenberg unveil the portrait of Stephenson during one of many trips Rothenberg made to the Marshall Center.



Photo by Terry Leibold, NASA/Marshall Space Flight Center

Veterans Day Parade

Marshall employees participated in the 2001 Veterans Day Parade held in Huntsville Monday.

Students

Continued from page 1

"It's very clear that we need scientists, engineers and mathematicians in the future to carry on the business that we do at NASA," says Marshall Director Art Stephenson. "When we looked at the number of students entering college to go into these fields, we realized there were not enough students to meet the demands that we see down the road in the next 10 years."

Inspired by a high school rocketry program in Fredericksburg, Texas, Stephenson saw first-hand how building and launching rockets is a way to encourage students to choose engineering or science careers. The result was the Student Launch Initiative: hands-on rocket science done by teams of high school and college students.

The first phase of the program culminated Oct. 6 when three high school teams brought their rockets and payloads to a U.S. Army test range on Redstone Arsenal, a historic site of U.S. rocketry work. More than 200 spectators held their breath as the students' apprehension turned into

relief and excitement when they watched their rockets fire and soar skyward.

Now, two college teams are about to confront the same moment of truth.

On Dec. 1, students from the University of Alabama in Huntsville (UAH) and neighboring Alabama A&M University will take their rocket and science payload to the launch pad to determine if they've got the right stuff. Propelled by a hybrid motor, the rocket will carry a protein crystal payload — or cargo — approximately 2 miles aloft, a higher bar than the 1-mile goal set for the high school teams.

"This project has taught me to work on a team," says Shane Smith, a junior majoring in mechanical engineering at UAH and a member of that school's Student Launch Initiative Team. "You have to learn to trust the other members to do their job. But the best part is knowing that our rocket will fly."

A major goal of the program is not simply to launch rockets, but to expose students to university-level research. A panel of NASA scientists and engineers set more rigorous guidelines for the rocket

and payload designed by the college teams than those set for the high school competition.

The Student Launch Initiative allows students to transcend classroom learning by enabling them to apply creativity — along with the scientific background gained in classes — toward a meaningful project, according to Jim Pruitt, manager of education programs at the Marshall Center and organizer of the Student Launch Initiative.

NASA uses its unique resources, whenever possible, to support educational excellence, since education is a key element in NASA's overall mission. The space agency participates in education outreach programs through its field centers around the country.

The writer, employed by ASRI, supports the Media Relations Department.



The Expedition Four crew will head to the International Space Station later this month.

'Energy tips'

Turn off computers when not in use

Editor's note: "Energy tips" is a weekly reminder that everyone needs to be energy conscious, both at home and in the workplace.

NASA has been directed to implement cost effective energy efficiency, renewable energy and water conservation measures in NASA facilities and operations.

The cooperation of each employee is needed in this effort.

Turn off computers at night and when not in use. Even if the machine has a sleep mode, it can consume as much as 30 watts per hour. If the computer has to be left on to process e-mails, it is suggested the monitor be turned off. A monitor accounts for as much as two thirds of the power used by a computer. Despite common belief, frequent on-off switching will not damage the equipment.

If you have an energy tip that you would like to share with the "Marshall Star" readers, send it to:

cedreck.davis@msfc.nasa.gov or

juergen.haukohl@msfc.nasa.gov

Marshall, UAH team up on continuing education classes

The Marshall Center, the University of Alabama in Huntsville (UAH) and others are collaborating on a series of continuing education classes aimed at propulsion and systems engineering in an attempt to regain knowledge that has been lost as the workforce ages and people retire.

Other advisers on the series include the U.S. Army's Aviation and Missile Command's Propulsion Directorate, the UAH Propulsion Research Center and industry.

Once students complete four core courses and one elective they will be awarded the Aerospace Propulsion Systems Certificate. A basic understanding of physics, fluid mechanics and thermodynamics is required.

The series includes an introduction to the fundamentals and operations of liquid, solid and air breathing propulsion systems. This series is intended to augment the knowledge of engineers and managers by giving them an understanding of the principles and concepts involved in the design and analysis of aerospace propulsion systems.

Attendees will be provided with an understanding of combustion chemistry and the operating principles of aerospace propulsion systems. The underlying principles of energy conversion are discussed along with their application to aerospace propulsion devices.

After mastering the principles of propulsion, students will benefit from a more in-depth treatment of the function and

analysis of turbomachinery, vital to a complete understanding of liquid and air breathing propulsion systems.

Core classes in the series are "Introduction to Propulsion," "Liquid Propulsion Technology," "Solid Propulsion Technology," and "Turbomachinery for Liquid Rocket and Air Breathing Engines." The elective must be either "In-Space Propulsion Fundamentals" or "Propulsion Applications."

Classes scheduled to begin in January include "Solid Propulsion Technology" and "Turbomachinery for Liquid Rocket and Air Breathing Engines." Marshall's Henry Stinson will teach the turbomachinery class. In March, Frank Curran of SAIC will teach "In-Space Propulsion Fundamentals" and Marshall's Bob Sackheim will teach "Propulsion Applications."

In addition to the propulsion series, UAH will offer a Systems Engineering Certificate Program, featuring a series of systems engineering short courses that begin in the winter quarter of 2002. This certificate program was developed under the guidance of the UAH Systems Engineering Advisory Committee composed of senior managers and Systems Engineering practitioners at U.S. Army Aviation and Missile Command, Space and Missile Defense Command, the Marshall Center and industry. The Marshall Center advisers are Dale Thomas, David Weeks and Bob Sackheim.

For more information, call 824-6372 or send an e-mail to: pratts@cepo.conted.uah.edu

Industrial Safety introduces IHOPS

from Marshall's Safety Office

The Industrial Safety Department unveiled a new database application in late October that promises a reduction in safety paperwork for supervisors.

The Inventory of Hazardous Operations, or IHOPS, is designed to combine several supervisory safety responsibilities into a single process. The new process is expected to become easier and faster than the multiple processes the Marshall Center used previously.

The project to develop and implement the IHOPS system, under way for the past year, involved most Industrial Safety Department personnel and their Hernandez Engineering Inc. support contractor counterparts.

"We recognized that the existing processes were cumbersome and time-consuming for our customers," said Dennis Davis, Industrial Safety Department Team lead. "Civil service and contractor supervisors often had real difficulty in satisfying the SHE — Safety, Health and Environmental — Program requirements.

"Our goal was to merge related compliance activities into one simplified process offering easy access to needed information, and providing definite feedback to supervisors when compliance is achieved."

IHOPS will allow Marshall organizations to complete and submit their annual

Inventory of Hazardous and Potentially Hazardous Operations electronically, through the Supervisor Safety Web page. Recognizing the time constraints supervisors must contend with, the capability to save and store work during the assessment process was designed into the program. IHOPS offers a convenient method for assigning the Facility Risk Indicator (FRI) required by MWI 8715.15, identifying the corresponding hazard assessment documents, and receiving Industrial Safety Department concurrence.

For many hazardous and potentially hazardous operations, links to reference and regulatory information have been included in the appropriate self-assessment compliance checklists. These features make it easier for supervisors to identify and understand the Occupational Safety and Health Administration and Marshall requirements that apply to an operation, and to evaluate the adequacy of the hazard controls they have in place. When it becomes necessary to create or update hazard analysis documents, quick access to the linked information will simplify the writing process. IHOPS will be a dynamic resource, with additional reference links and checklists being added as they are identified or developed.

Marshall organizations will gain a "one-stop" means of tracking their progress in completing required safety assessments, checking safety concurrence with hazard analysis documentation,

verifying regulatory compliance, and assuring state-of-the-art worker protection programs. IHOPS also permits supervisors to request technical assistance from the Industrial Safety Department with the click of a button. Once supervisors and their designees enter their data into the IHOPS and receive concurrence from Marshall's Safety Office, completing required reviews and updates will be quick and easy.

The Center gains a centralized, up-to-date repository of data concerning its hazardous locations and operations. IHOPS will enable Industrial Safety to effectively disseminate information regarding changes in regulatory requirements, advances in hazard control, lessons learned, and safety alerts to affected organizations and personnel. The Marshall Center will gain the capability to identify its "technical experts" in specific types of hazards, and pool their knowledge when needed to develop and improve worker protection programs.

IHOPS can be accessed at: http://msfcsma3.msfc.nasa.gov/s&ma_01/ihops/ or by using the links provided on the Web pages for the SHE Program, Voluntary Protection Program activity, or Supervisor Safety Web page. The IHOPS page includes training material introducing the IHOPS program, as well as printable instructions for using the database.

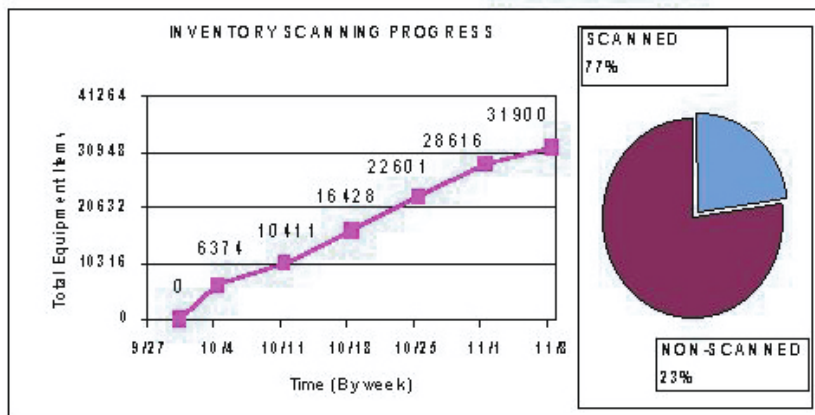
75 percent of Marshall equipment inventoried

As of Nov. 9, more than 75 percent of the 41,264 items of Marshall equipment has been inventoried.

The physical inventory of all government-owned equipment will continue through Dec. 31.

The inventory schedule is on the Web at:

<http://inv2001.msfc.nasa.gov>





Community Service Days

Marshall team helps six local agencies

Oct. 22 through Nov. 2, 238 members of the Marshall team volunteered time to help six participating Combined Federal Campaign (CFC) agencies in the Huntsville community.

Agencies where volunteers worked were CASA of Madison County, Huntsville Botanical Gardens, Downtown Rescue Mission, Huntsville Hospital Foundation, Union Hill Personal Growth Center and Big Brothers/Big Sisters.

Community Service Days provides the individual with a personal view of the actual work involved in operating and supporting the services local agencies provide year-round to needy individuals and families.



Photo by Ray Downward, NASA/Marshall Space Flight Center

Combined Federal Campaign volunteers at the Union Hill Personal Growth Center help lay out athletic fields.



Photo by Emmett Given, NASA/Marshall Space Flight Center

Sheryl Gates, left, and Carolyn Plank, right, help students from Big Brothers/Big Sisters paint playground equipment at Colonial Hills Elementary School.



Photo by Terry Leibold, NASA/Marshall Space Flight Center

Tammy Barcala, left, Susan Dunnivant, center, and Angie Haddock plant flowers at the Huntsville Botanical Gardens.

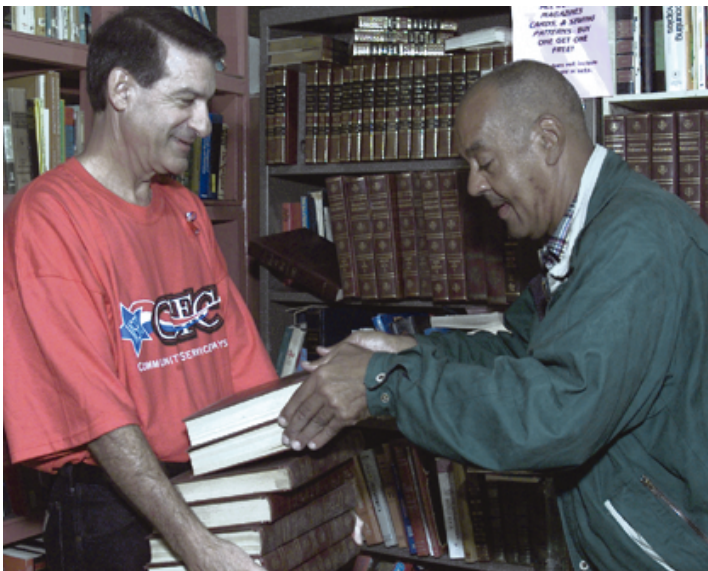


Photo by Emmett Given, NASA/Marshall Space Flight Center

Center Director Art Stephenson, left, helps Johnson Donnell shelve books at the Downtown Rescue Mission Thrift Store.

CFC contribution countdown

The 2001 Combined Federal Campaign has exceeded its monetary goal. "Our dollar amount of \$461,983.20 has exceeded our goal of \$450,000," said campaign executive chairwoman Deborah Gonzalez.

"Our percentage for participation is down from last year, and I would love to see it go up before the campaign is over Nov. 19," Gonzalez said. "Remember, it only takes \$1 to participate."



Red Cross monthly blood drive Friday, Bldg. 4752

The American Red Cross will hold its monthly blood drive from 8:30 a.m.-1:30 p.m. Friday in the gymnasium of the NASA Exchange Bldg. 4752. All blood types are needed.

Donors will receive a gift certificate for a free medium one-topping Domino's pizza. Anyone who cannot attend this blood drive, but wishes to participate, can donate at the American Red Cross, 1101 Washington St., Monday through Thursday, 10 a.m.-5:30 p.m., or Friday, 8 a.m.-1 p.m.

At last month's blood drive, the American Red Cross saw 139 people and collected 123 pints of blood. Thanks again to everyone who helps make the blood drive here at the Marshall Center a huge success.

Marshall employees who serve as blood donors without compensation will be authorized four hours of excused absence. The four-hour period is in addition to the time to travel to and from the blood center, waiting to give blood and giving blood. If rejected, donors must return to work and the four-hour period is not authorized. The excused absence is to be taken on the day the blood is donated. All donors are encouraged to take the full four hours of excused absence for this purpose. A longer period may be authorized only when required for recuperation.

Contractor personnel will comply with the policy of their respective companies.

For more information, call Nancy Fitzgerald at 544-7561.

Obituaries

Hooper, Albert W., 96, died June 1. He retired from Marshall in 1969 where he worked as an AST Technical Management. Hooper worked on Dr. Wernher von Braun's rocket team from 1950 until his retirement. Survivors include one daughter, Carolyn Hovik and one son, Roger Hooper. Memorials may be made to Hospice Family Care, 2225 Drake Ave., Huntsville, AL 35805.

Schulze, William A., 95, of Huntsville, a von Braun rocket team member, died Nov. 4. He retired from Marshall in 1969 where he worked as an AST, flight systems. Schulze was a native of Neulaubusch, Germany. He is survived by his wife, Gertrud M. Schulze.

Lishman, Sidney H., 69, of Huntsville, died Nov. 5. He retired from Marshall in 1999 where he worked as an aerospace engineer. He is survived by his wife, Louise Lishman.

Golley, Paul T., 66, of Huntsville, died Nov. 5. He retired from Marshall in 1995 where he worked as a supervisor, AST, aerospace engineer. He is survived by his wife, Pat Golley.

Leonids

Continued from page 1

as NASA's Chandra X-ray Observatory from dazzling — but potentially damaging — meteoroids.

"We're collecting this data to analyze and refine our meteor forecasting techniques," said Dr. Rob Suggs, the Leonid Environment Operations Center team leader. "If we can better determine where, when and how the meteors will strike, we can take protective measures to prevent or minimize damage to our spacecraft."

Those protective measures can range from turning a satellite so its most sensitive surface faces the direction of minimal exposure, to shutting down a spacecraft's electronic operations until the storm has passed.

"Good planning is essential, because in many cases, your only opportunity to protect the spacecraft is before the first meteor strikes," Suggs said. "For example, Chandra's orbit takes it one third of the way to the Moon, and its flight plans are uploaded days ahead of time. Once a meteor storm has begun, it's often too late to do anything about it."

Even though today's satellites are engineered to withstand daily meteoroid strikes, the risk of damage is a bit different for high-speed meteoroid streams, according to Dr. Jeff Anderson of Marshall's Engineering Directorate.

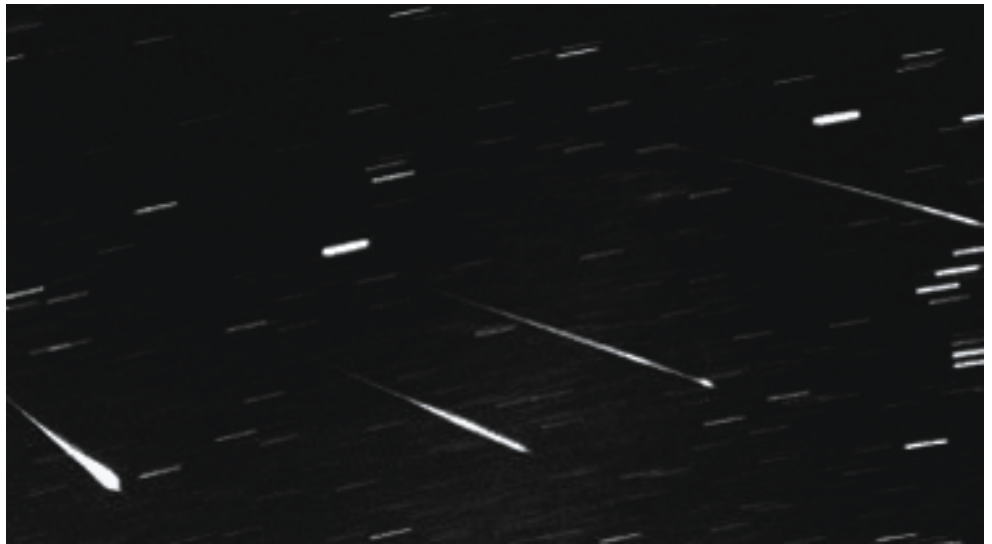
"The 'plasma effect' is more important," he said. "When a meteoroid hits a satellite, it can heat the impact site to thousands of degrees Kelvin — rivaling the surface temperature of the Sun. The entire meteoroid is vaporized along with a tiny bit of the spacecraft."

Considering that meteors are only about the size of a grain of sand, their potential for damage can be surprising. Their speed must also be considered. "They're small, but they move very fast — about 45 miles per second (71 kilometers per second)," said Dr. Bill Cooke of the Marshall Center, who — along with researchers at the University of Western Ontario in London, Ontario — generated one of the primary meteor forecast models NASA is evaluating.

According to Cooke's forecast, sky-gazers could see up to 1,400 meteors per hour if they are away from city lights, where the sky is dark enough to see the faint, as well as more brilliant, meteors. In the Eastern United States, the shower is predicted to peak near dawn, while in the Western United States, it is expected to peak around 2 a.m. PST.

A Leonid shower happens every year when Earth passes close to the orbit of the Comet Tempel-Tuttle and the debris left in the comet's path. This year it is expected to be exceptionally strong because of the times and position of the comet tails.

The material crossing Earth's path this year was ejected from



The Leonids meteor shower this weekend could peak with 1,400 per hour.

the comet at least 100 years ago. Meteor viewers in the United States, for example, will see material ejected from the comet in 1766 — a decade before the country was founded.

The NASA researchers, along with colleagues from the University of Western Ontario and the U.S. Air Force, will monitor the storm from six locations, each selected based on meteor forecasts and the area's climate. Sites include Huntsville, Ala.; Eglin Air Force Base, Fla.; Maui, Hawaii; Sunspot, N.M.; the U.S. Territory of Guam, and the Gobi Dessert in Mongolia.

Thanks to special equipment, the monitoring team has the capability to detect meteors the visual observer may miss. Using special image-intensified cameras that can detect faint objects even in low-light conditions, the researchers will monitor the shower, using the video screens as windows to the skies. Every hour, the teams will relay their observations to the Marshall control center, helping to paint a comprehensive picture of the meteor storm.

Another tool at Marshall's disposal is the "forward-scatter radar" system built by Suggs, Cooke and Anderson to monitor near-Earth meteoroid activity around the clock.

"Our system is pretty simple," said Suggs. "We use an antenna and computer-controlled shortwave receiver to listen for 67 MHz signals from distant TV stations."

The transmitters are over the horizon and normally out of range. But when a meteor streaks overhead the system records a brief ping — the echo of a TV signal bouncing off the meteor's trail. Like the cameras, this system is capable of detecting meteors too dim to see with the unaided eye.

The Marshall Center has provided Leonid forecast information to dozens of spacecraft operators to help prepare for this year's shower. "More importantly, by comparing the meteor shower predictions to the actual meteor counts, we are laying the groundwork to improve forecasts in the future," said Suggs.

The writer, employed by ASRI, supports the Media Relations Department.

Marshall budget analyst member of Echota tribe

by Debra Valine

Many Americans claim to be of Native American heritage, but can't always prove it. Katie Story, however, a budget analyst in the Institutional/Integration Office of Marshall's Office of the Chief Financial Officer, can prove it. She is a member of the Echota Cherokee tribe. She traces her heritage through her paternal grandmother, Kate Dukes Johnson, who was half Cherokee.

Story, who has been at the Marshall Center for 20 years, was born on the family farm in the Macedonia community near Section, Ala., in Jackson County. She now owns the farm, which is on the periphery of Buck's Pocket State Park, and plans to build a home and retire there. This is the same farm where her Grandma Johnson raised her seven children while also working in the fields picking cotton.

"My grandmother knew a lot about natural remedies," said Story, one of 31 Native Americans listed with Marshall's Equal Opportunity Office. "She spent a lot of time in the woods searching for plants and roots that she could use for medicine. I remember when someone was sick, she would boil onions to make a broth. She would have them drink the broth and then make a compress with the onions and put it on their chest. It sounds funny, but it worked. She also said onion broth would soothe a baby so it could sleep."

'My grandmother knew a lot about natural remedies. She spent a lot of time in the woods searching for plants and roots that she could use for medicine.'

— Katie Story

"When my son Jonathan had trouble sleeping as a child, I would get out the onions and make a broth for him," Story said. "To this day the smell of cooking onions makes him sick." Jonathan is also part Seminole, inherited from his father's side of the family.

"Grandma Johnson, who died in 1960, was a very gritty, strong woman," Story said. "She was humble, but she found ways to overcome some of the hardships she faced."

While Johnson did not have a formal education, she recognized the need for her son, Arnold — Story's father — to get a formal education, and she used her grit and determination to see that he received one.

"My grandmother was particularly close to my dad because he was handicapped," Story said. "My grandmother knew he would not be able to work in the fields like her other children and would need an education to be able to support himself. So, she left home for a period of time for him to attend school. He later graduated from Jacksonville State University and was a school teacher himself for 50 years."

Story would really like to start a Native American Awareness group at the Marshall Center. Her goal would be to help employees find their native American ancestors, and, if possible, gain affiliation



Photo by Dennis Olive, NASA/Marshall Space Flight Center

Katie Story holds a photo of her Cherokee Grandmother, Kate Johnson.

with a tribe. Employees who are interested in talking to Story about forming a Native American group can call her at 544-0053, or send her an e-mail.

"I am very proud of my Indian heritage and even prouder of the examples set by Grandmother Johnson and my father," she said. "They both had warm, gentle natures, and I attribute that to traits they inherited from their Cherokee ancestors."

The writer, employed by ASRI, is the Marshall Star editor.

Center Announcements

Thanksgiving Dinner

All Marshall cafeterias will offer a Thanksgiving menu Thursday, Nov. 15. Menu includes roasted turkey breast with giblet gravy, baked ham with pineapple, sweet potato casserole, green beans, corn, mashed potatoes, rolls, pecan pie and pumpkin pie. Patrons get a choice of entrée, three vegetables, roll, drink and dessert for \$5.50.

FEHB Open Season

The 2002 Federal Employees Health Benefits (FEHB) Open Season continues through Dec. 10. This is an opportunity to enroll, change plans or change from self only to family coverage. All changes during the open season will be effective Jan. 13, 2002. A Health Fair for all employees will be held from 9 a.m.-3 p.m. Nov. 15 in Bldg. 4200, room G-13E. The health carriers that will be attending are Blue Cross/Blue Shield, GEHA and Mail Handlers. For more information you can access the OPM Web site at: www.opm.gov/insure/02/ or call Debbie Allen at 544-7536.

TSP Open Season

Nov. 15 through Jan. 31, 2002, is the Thrift Savings Plan (TSP) Open Season. This is a chance to start or change the amount of your contributions to your Thrift Savings Plan account. Changes will be effective Jan. 13, 2002. For more information, call Ginger Martin at 544-5654, or Debbie Allen at 544-7536.

Holiday events

Upcoming Marshall Center December holiday events include the Tree Lighting Ceremony at 4 p.m. Dec. 3 at Bldg. 4200 and the Center Holiday Reception from 1-3 p.m. Dec. 5 at Bldg. 4752.

CI/CS training on Web

Continual Improvement and Customer Satisfaction (CI/CS) training modules are available on the Web at: <http://masterlist.msfc.nasa.gov/>

training_modules.

All Marshall civil servants and contractors are asked to complete this training in preparation for the ISO 9000/2000 audit in late November.

NASA/High School Senior Day

Marshall Center employees and on-site contractors will be admitted free to the Nov. 17 NASA/High School Day at Alabama A&M University upon presentation of their badge. The Alabama A&M University football team will play the University of Arkansas-Pine Bluff at 1:30 p.m. at the Louis Crews Stadium on the campus. The event is in conjunction with the NASA Exchange.

Upcoming classes

Resume building briefings

The following NASA STARS Process and Employee Resume Building Briefings will be in November and December. Briefings will be from 9:30-11:30 a.m. in Bldg. 4200, room G-13C on Nov. 27, Dec. 4, and Dec. 11. Each session will be filled on a first come first serve basis. Each session is limited to 25 participants.

Property management training

The National Property Management Association (NPMA) Rocket City Chapter's Fall 2001 Training will be from 8 a.m.-4 p.m. Dec. 5 in Morris Auditorium. To pre-register or obtain additional information, contact Lori Hawkins, (256) 750-6523 (lori.hawkins@tfetech.com) or Bill DeMarco, (256) 772-2637 (william.r.demarco@boeing.com) or for additional information only, call Debie Grissom, (256) 544-6572 (debie.grissom@msfc.nasa.gov).

Cost Control classes

The fifth in a series of project planning and analysis classes, Space Project Cost Estimating and Analysis, will be from 8 a.m.-noon Nov. 28, in Bldg. 4200, room G-13E. Other classes this

year include Earned Value Management and Data Analysis, Dec. 5, Introduction to Configuration and Data Management, Dec. 12 and Continuous Risk Management Overview, Dec. 19. Classes resume in January with Project Analysis on Jan. 9, Schedule Assessment and Analysis, Jan. 16, and Managing a Technology Program, Jan. 23. Participants interested in attending should register via AdminSTAR.

Clubs and Meetings

Genealogical Society meets

Learn to research your Irish roots at the Huntsville Genealogical Computing Society's monthly meeting at 7 p.m. Nov. 19 in the auditorium of the Huntsville-Madison County Main Library. Visitors are always welcome. Reservations not required.

Moo retirees

Due to the Thanksgiving holiday, the MOO retirees' breakfast will be at 10 a.m., Nov. 29 at the Cracker Barrel restaurant in Madison. For more information, call 539-0042 or 852-6396.

Miscellaneous

Girl Scout Cookies

Girl Scouts are taking orders for cookies through Dec. 2. Direct sales will be Jan 12-Feb. 16, 2002. If you don't know a Girl Scout, call 1-800-410-8338 to locate a troop near you. Cookies are \$3 per box.

NASA Exchange

Barber shop closed

S&H Barber Shop in Bldg. 4203 will be closed Nov. 22 and 23 for Thanksgiving. A full range of services is provided during regular hours 8 a.m.-4:45 p.m. Monday through Friday. For an appointment, call 881-7932.

Center Announcements

Annual nut sale

The NASA Exchange annual nut sale begins Nov. 16. Sales will be from 9 a.m. -4 p.m., Monday-Friday (excluding holidays) in Bldg. 4752 on racquetball court No. 3 on a first-come/first-serve basis. Products offered are: Chocolate-covered pecans 16 oz., \$7; English walnuts 16 oz., \$3.75; Natural almonds 16 oz. \$3.25; Pecans 16 oz., \$5.50; Raw peanuts 16 oz., \$2; Salted (in shell) natural pistachios 16 oz., \$3.75; Whole roasted salted almonds 16 oz., \$3.25. For more information, call 544-7565.

Disney Hotel Package

Executive Tour and Travel Services Inc. is offering a discount hotel package to NASA Marshall employees, retirees, families and friends. The package includes a four-day/three-night Disney/Epcot Area Hotel package for two adults and two children up to 12 years for \$139 (room tax not included). Hotels included in this package are: Red Roof Inns, Wynfield Inn, Ramada Inn, Quality Inn, Holiday Inn, Summer Bay*, and Island One* (*Tour Required. Travel to Florida not included.) To take advantage of this exclusive offer, a deposit of \$65 plus \$5 for shipping and handling must be made by Dec. 6. Although a 60-day advanced notice is required, travel dates are good through December 2002. For more information, call Executive Tour and Travel Services Inc. at (800) 272-4707, Monday-Friday 8 a.m.-7 p.m. CST, or Saturday 8-11 a.m. CST. The NASA Exchange account reference is BG-11583-010. Flyers are available at the NASA Exchange Space Shop in Bldg. 4203.

"Nunsense" tickets

NASA employees, retirees and NASA contractors may receive a \$1 discount on tickets to Madison Community Chorus sidesplitting musical comedy, "Nunsense," written by Dan Goggin. To receive the \$1 discount, present your badge at the auditorium door of Bob Jones High School. Tickets also may be purchased in the lobby of Madison City Hall from 11 a.m.-1 p.m. Nov. 15-16. Show times for "Nunsense" in the auditorium of Bob Jones High School at 650 Hughes Road in Madison are: Nov. 16 at 7 p.m.; Nov. 17 at 2 p.m. and 7 p.m.; and Nov. 18 at 2 p.m. All tickets are \$18. Seating is reserved. For tickets, call 316-0521 or send an e-mail to: glparker01@msn.com. For more information, visit the Web site for Madison Community Chorus at: "<http://www.angelfire.com/musicals/mcchorus/>" or call Candy Bailey at 544-7565.

Community Chorus

NASA employees, retirees and contractors can receive a 10 percent discount to all Huntsville Community Chorus Association (HCCA) concerts and musicals. The

discount can only be obtained by presenting your badge at the HCCA office, 3312 Long Ave (Fantasy Arts Center). Regular prices are: adults - \$12 and seniors/students - \$10. For more information, call 533-6606.

'Something's Afoot' tickets

NASA employees, retirees and contractors will receive a \$1 discount on tickets to "Something's Afoot" by showing their NASA badge at the Ars Nova Box Office of the Von Braun Center Playhouse. Showtimes are Nov. 16-17 at 7:30 p.m. Tickets are \$18 and \$22 for adults and \$15 for students and seniors. All seats are reserved. For more information, call 883-1105.

Dance lessons

Waltz and cha-cha dance lessons — at \$7 per person per night — will be held on Mondays in November at Saint Stephen's Episcopal Church on Whitesburg Drive. Intermediate lessons are from 7-8 p.m.; beginner lessons from 8-9 p.m. Bonnie Henley, qualified dance instructor at the University of Alabama in Huntsville for 15 years, will be teaching. If you have any questions, please call Woody Bombara at 650-0200.

MARS Christmas dance

The MARS Ballroom Dance Club Christmas Dinner Dance will be 6:30 p.m.-11 p.m. Dec. 1 at the Von Braun Center. The semi-formal event includes a social at 6:30 p.m. with a cash bar followed by a special holiday buffet dinner at 7 p.m. and dancing from 8-11 p.m. The Little Big Band will play "big band" type music, and the Nite Owls — featuring Marshall's own Tina Swindell — will follow with a variety of swing and contemporary music. The bands will alternate every 30 minutes providing non-stop music. Attendance will be limited to 500 people, and tickets will be available on a "first come" basis at \$25 per person, with a \$5 discount for MARS Dance Club members. Tickets will not be sold in the NASA Exchange building as in previous years, but will be available from ticket sellers listed below until Nov. 27. To purchase tickets, call Linda Kinney at 544-0563, Bldg. 4610/room 5034; Palmer Herndon at 534-7408; Bob Williams at 544-3998, Bldg. 4203/room 4319; Joyce Davis at 880-2270; Hugo Berry at 544-3525, Bldg. 4487/room A209A; Woody Bombara at 650-0200; Pat Sage at 544-5427, Bldg. 4610/room 1021A; or Tamara Landers at 544-6818, Bldg. 4612/room 2401. The only reserved seating will be for full tables of eight. To reserve a table, please purchase eight tickets from any one of the sellers above, and then call Woody Bombara to make the reservation. All other seating will be "open."

Employee Ads

Miscellaneous

- ★ Playstation games: Metal Gear Solid with strategy guide, \$15; Parasite Eve, \$10. 883-5396
- ★ GE stove, self-cleaning oven, almond color, \$100. 837-0559
- ★ Antique reproduction upright piano, mahogany, \$300. 694-0500
- ★ Truck bedliner/tailgate (Protects), fits 89-98 Chev./GMC regular bed, installed, \$20. 864-0465
- ★ Bunk bed, red metal with one mattress, \$45 obo. 837-1405
- ★ Christmas dishes, six Wachtersbach chargers, red with green trees border, \$17 each. 882-6832
- ★ Sears 8HP mulcher/shredder, \$375; new baseboard heaters, wood table with three chairs, \$60. 837-6776
- ★ Antique Duncan-Fyfe sofa, \$75; matching mahogany coffee table, \$30. 881-8674
- ★ RCA 46" TV w/PIP, Oak computer desk. 895-6916
- ★ Yamaha DW8 acoustic guitar, black, abalone all around, asking \$250. 883-7299
- ★ Coffee table, bamboo, square with glass top, \$40; chair with ottoman, wood/upholstered, \$70. 881-5093
- ★ Purebred Australian Shepherd puppies, 6 weeks, wormed, first shots, \$75 each. 561-2287
- ★ Sofa and loveseat, burgundy, green, navy plaid, \$425 for set. 881-3527
- ★ Duerr leaf/limb shredder/chipper with leaf vacuum hose, blower and bag, balloon tires, \$295. 880-5551
- ★ Sewing machine cabinet, solid oak w/ motorized machine lift and storage drawers, \$150 obo. 864-0465
- ★ American Bi-centennial glassware set, Pharmacy's Historic Role, 8 glasses, 1 decanter, \$15. 882-1097
- ★ Alabama vs. Southern Miss. tickets, one-pair at \$40 each obo. 683-8570

- ★ Full-size mattress, box springs, rails, \$40. 971-0048
- ★ Local honey, \$5/quart, \$3/pint, case discounts. 837-8087
- ★ Snapper riding mower, 10HP, 28" cut, extra mulcher blade, \$250. 489-0106/508-8117
- ★ Thirty old record albums, \$1 each. 882-1097
- ★ Treestand, \$150; AKC lab pups, yellow, \$300, ready Nov. 13. (256) 259-5140
- ★ Golf clubs and bag, \$65. 536-8951
- ★ Solomon ski boots, size 9, rear entry, \$35. (256) 539-5543
- ★ Fishing/duck hunting boat, 14', AluminumCraft, tilt trailer, 18HP outboard motor, oars, extras, \$650. 256-498-3023
- ★ Beige leather sofa set; sofa, extra large plush chair & ottoman, \$300 obo. 961-9655
- ★ Pentium Pro PC w/32Mb RAM, 333Mhz, 4Gb hard-drive, 17" monitor, WIN95, \$300 obo. 882-1779
- ★ Secret Garden china by Nikko; eight 5-piece place settings, two serving bowls, serving platter, sugar & creamer, dishwasher safe, best offer. 233-8595

Vehicles

- ★ 1998 Jeep Wrangler, 13K miles, new tires, premium sound, leather seats, 5-speed, \$13,500. 534-3252
- ★ 1990 Chevrolet Blazer, full size, 350, many factory options, 122K miles, \$6,300 obo. 837-1405
- ★ 1991 Explorer XLT, 69K miles, power package, one-owner, all records, \$4,800. 883-0164
- ★ 1994 Maxima GXE, champagne/beige, leather seats, AM/FM cassette, 94K miles, \$6,200. 881-8674
- ★ 1989 Chevrolet 1500 step-side pick-up, black with gray interior, new tires, \$3,900. 971-0476
- ★ 1996 Pontiac Bonneville, SSE package, leather seats, one-owner, 67K miles, \$7,995. 881-1864

- ★ 1985 Ford Ranger pickup, 4WD, 6-cylinder, 5-sp, camper shell, \$2,500. 232-7495
- ★ 1999 Honda Accord LX, 2-door, V-6, 38K miles, \$15,500. 536-3390
- ★ 1985 Chevy S-10 pickup, 4-cylinder, 4-speed, a/c, 137K miles, \$500. 355-4324/353-7224
- ★ 1999 3/4-ton Dodge truck, Cummins diesel, quad-cab, manual 5-speed, all synthetic fluids, 35K miles, toolbox, 20+mpg, \$24,900. (256) 232-1418
- ★ 1996 Ranger XLT, 81K miles, 5-speed, new tires, toolbox, green \$6,000 obo. (256) 586-7297
- ★ 1999 Ford Taurus SE, 65K miles, all-power, \$8,500. (256) 603-5585

Wanted

- ★ Safe, prefer one with large volume such as a Remington Sportsman 21-gun safe. 881-6040
- ★ Baby crib/bed in good condition. 883-6455/520-6455
- ★ Recumbent bicycle. 880-9025

Lost

- ★ White gold ladies ring, four diamonds, inside or outside Marshall Activities Bldg. 4752. 544-2496

Found

- ★ Prescription glasses at Marshall Medical Center on 11/7/01. Call 544-2390 or come by to claim

Free

- ★ Two apartment-trained cats, neutered, de-clawed, quiet temperament, suited for older person. 864-0362

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